Applicant: Ash et al.
For: COMPACT NAVIGATION SYSTEM AND METHOD

ABSTRACT OF DISCLOSURE

A compact navigation system for a rover is provided. The navigation system includes a housing configured to be transported by the rover; a gimbal system having two or more gimbals that includes at least an outer gimbal connected to the housing and an inner gimbal nested in and connected to the outer gimbal; a solid state three-axis gyro assembly mounted on the inner gimbal; a solid state three-axis accelerometer assembly mounted on the inner gimbal; a gyro logic circuit responsive to the three-axis gyro assembly for producing an inertial angular rate about each gyro input axis; an accelerometer logic circuit responsive to the three-axis accelerometer assembly for producing a non-gravitational acceleration along each accelerometer input axis; and a processor responsive to the gyro logic circuits and the accelerometer logic circuits for determining the attitude and the position of the housing to provide for long term accuracy of the attitude and the position for navigation of the rover.